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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/659,879      | 09/12/2000  | Pengfei Zhu          | 3-4                 | 5876             |

7590 02/04/2004

Docket Administrator (Rm. 3C-512)  
Lucent Technologies Inc  
600 Mountain Avenue  
P O Box 636  
Murray Hill, NJ 07974-0636

EXAMINER

LE, AMANDA T

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2634

DATE MAILED: 02/04/2004

4

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/659,879

Applicant(s)

ZHU ET AL.

Examiner

Amanda T Le

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 March 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☒ Claim(s) 10, 11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 3/06/02 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Karnaugh et al.

Regarding claims 1 and 6, Karnaugh et al discloses a data receiver (Fig. 1A, 1B) comprising the following claimed limitations: “a plurality of distinct filters selectably coupled to the input and the output (F1, F2) wherein each one of the plurality of filters has a different set of pre-calculated filter coefficients (33-35); a switching circuit (43, 45, 58) that selects one of the plurality of distinct filters based on an error signal (42).”

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

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claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karnaugh et al.

Karnaugh et al discloses all the subject matters claimed, as stated on paragraph 2 above, except for each of the filters “has a different order” or “is a non-recursive filter” or the precalculated filter coefficients are calculated using “Lagrangian interpolation” or “interpolation other than Lagrangian”. Nonetheless, the above-mentioned features are well known in the art at the time of the invention. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Karnaugh et al’s filter arrangement to incorporate such well known features as called for by the requirements of a particular system.

6. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ghosh in view of Karnaugh et al.

Regarding claims 7 and 8, Gosh discloses a receiver (fig. 5A, col. 3, lines 40-60) comprising a filter 43 having coefficients for estimating the NSTC spectrum (“channel estimation”), responsive to the error signal generated by subtractor circuit 41 (“decoder”). The Gosh reference differs from the claimed invention in that the filtering operation of the channel

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response estimator is performed by a filter having adaptive coefficients, rather than a plurality of filters having different coefficients.

Karnaugh et al discloses a receiver (1A, 1B) wherein the filtering operation is performed by a plurality of digital filters (F1, F2) having different coefficients. It would have been obvious to one of ordinary skill in the art at the time of the invention to employ Karnaugh et al's filtering circuit to carry out the filtering operation of Ghosh's receiver. Since the same purpose of filtering a signal using adaptive coefficients is achieved, it is simply a matter of using alternate embodiments depending on the design requirements to achieve the same result.

Regarding claim 9, it would have been obvious to one of the ordinary skill in the art at the time of the invention to use the claimed "reference signals", known in the art as "training sequence", for the purpose of setting the coefficients of the receiving filter.

***Allowable Subject Matter***

7. Claims 10 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter: Prior art of record, taken individually or collectively, fails to incorporate the following claimed subject matters in the manner as claimed: "the step of applying the received reference signal to the selected filter comprises determining a quantity of received reference signals to be applied thus determining the order of the selected filter" or "the step of selecting one of the plurality of distinct filters comprises the step of establishing a value for the received error signal,

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establishing a threshold value that is a function of the error signal, and selecting the one filter based on the value of the received error signal relative to the value of the established threshold”.

***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Clemow discloses a filter switching method. Chuang et al discloses a joint channel estimation and decoding method.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Amanda Le** whose telephone number is **(703) 305-4769**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Stephen Chin**, can be reached at (703) 305-4714.

**Any response to this action should be mailed to:**

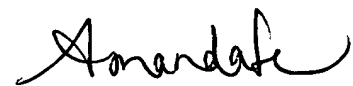
Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**or faxed to:**

**(703) 872-9306 (for Technology Center 2600 only)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.



AMANDA T. LE  
PRIMARY EXAMINER